REMARKS

I. Status

Claims 1-4, 10-14, and 17-19 were under examination. To expedite prosecution, the pending claims have been canceled and new claims 20-30 have been added. As shown in the table below, the new claims correspond generally to the previously pending claims.

Number of Original Claim	Number of Corresponding New claim
1	**20**
2	canceled
3	**21**
4	canceled
--	**22**
10	**23-25**
11	canceled
12-14	**28-30**
17	**26-27**
18	canceled
19	canceled

The new claims add no new matter. In claim 20, support for "telomerase catalytic activity"(also called "full telomerase activity" in the specification) is replete in the specification (see, e.g., page 118, lines 1-11). Telomerase catalytic activity can be assayed using a variety of routine assays known in the art (e.g., see the specification at page 15, lines 25-28, and page 64, line 26 to page 68, line 5). Support for "90%" in claim 20 is found at page 90, lines 5-10 of the specification.

The cancellation or amendment of claims by Applicants is made without prejudice to future prosecution of the original claims, and should not be interpreted as agreement with the rational for rejection articulated by the Office.

II. Rejections Under 35 U.S.C. §112, First Paragraph

Claims 1-4, 12-14 and 17-19 were rejected under 35 U.S.C. §112, first paragraph, as allegedly not described and as allegedly not enabled by the specification. These rejections are discussed *infra* with reference to the new claims.

A. Claims 1-4, 10-12, and 17-19

Claims 1-4, 10-12, and 17-19 were directed to polynucleotides encoding the mTERT protein (*i.e.*, the catalytic protein subunit of mouse telomerase), and to expression vectors and cells containing such polynucleotides. As applicants understand the Office Action, it is asserted that the instant disclosure specification is not commensurate in scope with the assertedly large genus of mTERT polynucleotides encompassed by original claim 1.

As noted *supra*, to expedite prosecution, claim 1 has been canceled. New claim 20 is added in its place. Claim 20 encompasses polynucleotides encoding the naturally occurring mouse TERT protein sequence set forth as SEQ. ID. NO.:2, as well as variants, such as allelic variants, with at least 90% sequence identity to SEQ. ID. NO.:2. Significantly, claim 20 also recites that the encoded protein variants express the telomerase catalytic activity of naturally occurring mTERT.

Claim 20 is fully supported by the specification. First, the claim is enabled by the specification: one of ordinary skill in the art, following the guidance of the instant specification (*inter alia* the disclosure of SEQ ID NO.: 2, routine methods for producing variants, and several assays for telomerase activity described in the specification) would be able to make and use the polynucleotides, cells and vectors now claimed using routine screening methods and without undue experimentation. Second, the claimed subject matter is adequately described: for example, under the criteria of the "Interm Guidelines on Written Description" cited by the Office, claimed subject matter may be described by, *inter alia*, disclosure of relevant identifying characteristics including a combination of structural and functional characteristics. In the case of claim 20, the structure and function of the claimed polypeptides is described (e.g., encoding a protein with at least 90% sequence identity to SEQ ID NO:2 and having telomerase catalytic activity).

Claim 21 recites the specific sequence set forth in SEQ ID. No.:2 and claim 22 similarly recites the specific sequence specifies that the polynucleotide has the sequence of Seq. ID. No.:1. As Applicants understand the Action, the Office has acknowledged that the subject matter of these claims is supported. See page 7, lines 8-9, of the Action stating that the "polynucleotide, polypeptide, expression vector and host cells comprising **nucleotide** and **amino acid** sequences of SEQ ID 1 [and SEQ ID NO:2] . . . [are] enabled" (emphasis added).

Claims 23-25 (directed to cells comprising the mTERT polynucleotides) and claims 26-27 (directed to expression vectors comprising these polynucleotides) are similarly supported by the specification.

In view of the Amendments to the claims, Applicants believe these claims are in condition for allowance.

Claims 12-14

Claims 12-14 were directed, *inter alia*, to recombinant cells in which an endogenous mTERT gene is mutated by recombinant means (i.e., homologous recombination) using an mTERT gene sequence of the invention, resulting in a cell deficient in telomerase catalytic activity, or progeny of such cells. These claims have been canceled and claims 28-30 substituted.

The Office correctly acknowledges that, provided with the disclosure by the instant inventors of mTERT gene sequence, "**the mTERT gene can be 'knocked out' using conventional techniques usually involving homologous recombination**" (Office Action, page 7, second paragraph, emphasis added). Indeed, provided with the mouse TERT sequence disclosed by the Applicants, it is routine in the art to produce a recombinant cell in which a region of the endogenous TERT gene is mutated or deleted. Moreover, the specification provides ample description of how such "knockout" cells and mice containing such cells are produced; see, e.g., page 47, line 3 to page 49, line 22. Thus, the claims as pending are fully enabled and are in condition for allowance.

In articulating this rejection, the Office stated "it is not clear that the applicant possessed even a single transfected cell wherein **any and all** components of telomerase complex have been knocked out by recombinant means and an exogenous mTERT gene have

[sic] been transfected" (see entire paragraph bridging pages 7 and 8 of the Action; emphasis added). However, the claimed subject matter is fully described and enabled. First, the claims do not require that **all** components of the "telomerase complex" be "knocked out" or mutated; the claims are directed to cells in which the endogenous **mTERT** gene is mutated. As discussed *supra*, and as acknowledged by the Office, in view of the present Inventors' disclosure of the DNA sequence of the mTRT gene, producing such cells is routine. Further, because the catalytic subunit is essential for telomerase activity, disabling the mTERT gene results in a cell in which there is no telomerase activity even if other "telomerase components," such as the "telomerase RNA moiety" or "telomerase associated proteins" referred to by the Office, remain active.

Further, with regard to the assertion by the Office that "it is not clear that the applicant possessed even a single transfected cell . . ." this is not a legally cognizable basis for a rejection under §112. It is well established that patentability does not require disclosure of a working example in the specification, or even actual reduction to practice. See, *e.g.*, M.P.E.P. §2164.02. In the present case, the claimed subject matter is amply described and, as acknowledged by the Examiner, one of skill could routinely make and use the claimed "knockout" cells in view of Applicant' disclosure of the mTERT gene.

In view of the amendments to the claims, Applicants respectfully request that the present rejections be withdrawn.

III. Rejections Under 35 U.S.C. §112, Second Paragraph

Claims 1-4 and 17-19 were rejected as allegedly indefinite for various reasons, as stated in the Action. Most of the bases for rejection are moot in view of the cancellation of the originally pending claims. The single remaining issue is the recitation of sequence "identity" in new claim 20. Applicants respectfully believe that the metes and bounds of this claim would be clear to one of ordinary skill in the art. An amino acid sequence with at least 90% sequence identity to SEQ ID NO:2 can be readily identified by manual alignment and inspection; in addition, several suitable algorithms are provided in the instant specification at page 30, line 5 to page 31, line 5, including the specification of default parameters. The example provided by the Office at page 9 of the Action relates, *arguendo* and at best, to

nucleic acid sequences and is not relevant to present claim 20, which recites SEQ ID NO:2, an amino acid sequence.

Applicants respectfully request that this rejection be withdrawn.

IV. Rejections Under 35 U.S.C. §102

Claims 1, 2, 4, 10, 11 and 17 were asserted by the Examiner to be anticipated by Meyerson et al. Applicants believe that this rejection is mooted by the amendments to the claims.[1]

V. Double Patenting

The Examiner requested Applicants provide copies of several copending applications (which are apparently not available in the Office), to facilitate the Examiner's ability to Examiner double-patenting issues. In view of the amendment to the claims, Applicants believe that this issue is now moot. If the Examiner continues to believe that copies of pending claims would be of assistance, he is requested to contact the undersigned Applicants' representative by telephone, and copies of specifications will be provided.

VI. Priority

The Office objected to the priority claim in the subject application. Applicants have amended the specification to recite a different priority claim. A substitute Declaration reflecting the change in priority claim will be filed under separate cover.

[1] So that the record will be clear, Applicants respectfully note that the basis for this rejection articulated in the Action, "the DNA described in the prior art would hybridize to the nucleotide of SEQ ID NO:1 at some level of stringent conditions because the stringent condition has been described in the instant application," is unclear. If this rejection is applied to any pending claim, Applicants respectfully request clarification.

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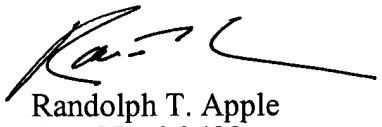
If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (650) 324-2400 ext. 5270.

Respectfully submitted,



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